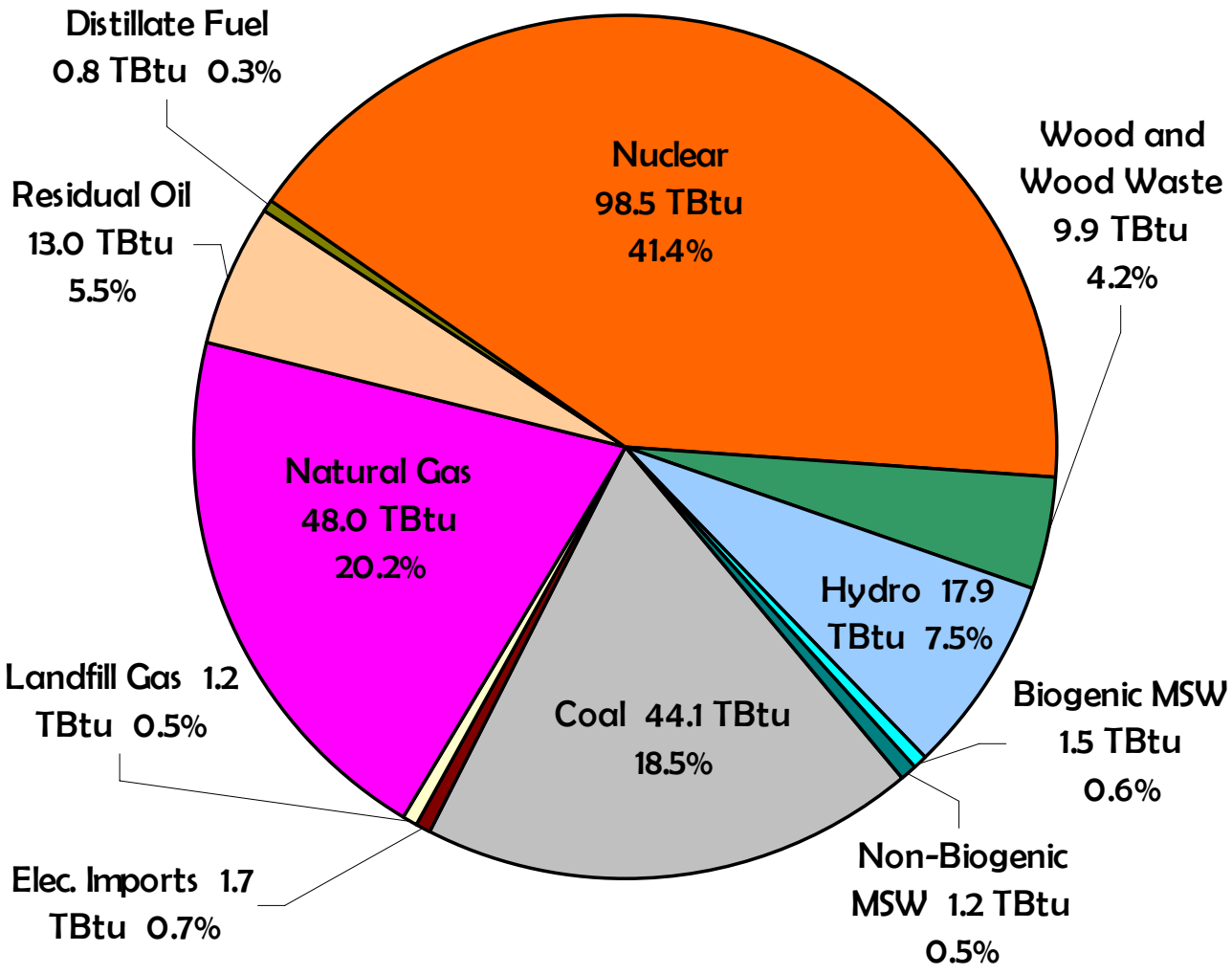
New Hampshire Energy Facts: Electric Power Sector

ENERGY INPUTS

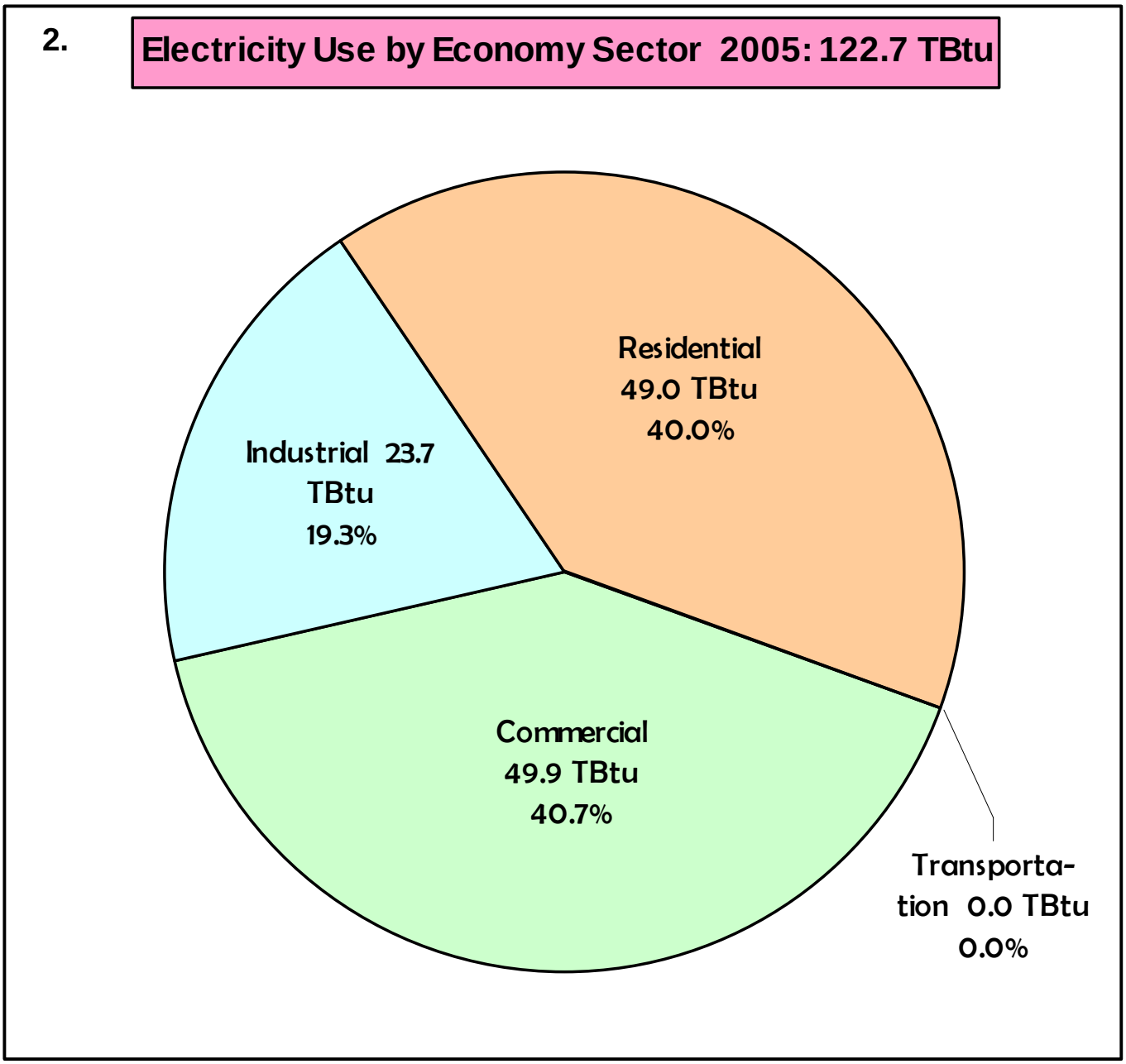
- Gross energy use was 237.8 TBtu, or 52.8% of the state's total gross energy use.
- Net energy use was 122.7 TBtu, or 36.6% of the state's total net energy use.

The difference between Gross and Net is the amount of electric energy exported from New Hampshire, 48.5% of total electricity generation in 2005.

1. Electric Power Sector Gross Energy Use 2005: 237.8 TBtu



ELECTRIC ENERGY USE BY ECONOMY SECTOR



ELECTRIC ENERGY NOTES

- EFFICIENCY- 31%
  - The overall efficiency for the entire electric power industry nationwide, from primary energy source (water power, coal, uranium, etc.) to final user is estimated by US DOE to be 31%, which means the end user has access to about one-third of the energy that was used to generate the electricity.
  - Chart 3 shows the energy INPUT to each sector, not the amount of energy actually received at the meter. For example, the commercial sector's electricity consumption of 49.9 TBtu represents approximately 31% usable electricity and 69% unavoidable energy "losses" incurred in generation and in subsequent "line losses". Thus, the actual energy used by the commercial sector, on their side of the electric meters, is 15.5 TBtu. However, they could not receive those

15.5 TBtu unless 49.9 TBtu of energy was put into generation and transmission in the first place. The US Department of Energy (DOE), data source for New Hampshire Energy Facts, allocates these "losses" not to the electric power sector but to the end-user sectors in proportion to the electricity consumed. This seemingly counterintuitive approach is consistent with economic analyses across the economy, where production costs are included in final retail prices.

- MEASUREMENT
  - The capability to generate electricity - measured in megawatts (MW) - is not the same parameter as the actual amount of electricity generated - which is measured as megawatt-hours (MWh). A simple analogy: A car's engine has the capability to produce a maximum amount of power at any given moment. This is the engine's horsepower rating, analogous to the MW rating for an electricity generating facility. However, the total amount of a car's power output (analogous to MWh) in a year depends not only on the horsepower, but also on how much the car was driven, and under what conditions (acceleration, idling, cruising). This is also the case with electricity generating facilities.
  - Electricity generating facilities do not always operate at their rated capability (MW), nor do they operate all the time: Market conditions and maintenance requirements influence operating patterns and schedules. Therefore, the amount of electricity generated (MWh) by each kind of energy input (coal, wood, etc.) is not necessarily proportional to that energy type's percentage of the total generation capability mix: A given hydroelectric power plant may operate a greater or lesser number of hours than a coal-fired power plant in a particular year.
  - Including electricity in total energy consumption counts the energy twice: first as energy inputs for generation, and then again at final use. To avoid artificially inflating the state's total energy inputs, this fact must be considered in analyzing a state's total energy consumption. At the same time, electricity consumption is important to measure in order to obtain a true picture of each economic sector's total energy needs, which must be met regardless of the energy's sources.

Definitions and Technical Notes
Summary of 2005 NH Energy Consumption by Source and Economy Sector